III.A.5.N.B. FACULTATIVELY DECIDUOUS EXTREMELY XEROMORPHIC SUBDESERT SHRUBLAND

III.A.5.N.b.6. ATRIPLEX CANESCENS SHRUBLAND ALLIANCE
Fourwing Saltbush Shrubland Alliance

Alliance Identifier: A.869
Atriplex canescens / Pleuraphis jamesii Shrubland
Fourwing Saltbush / James' Galleta Shrubland
Fourwing Saltbush / Galleta Shrubland

ELEMENT CONCEPT

GLOBAL SUMMARY: This broadly defined shrubland association has been reported from the southwestern Great Plains, Colorado Plateau, Uinta Basin, and may occur in the Chihuahuan Desert and eastern California. As defined, this association occurs on two distinct types of landforms: alluvial flats and stream terraces with fine-textured soils, or on sand sheets and dunes with sand or sandy loam substrates. The alluvial soils are often deep, alkaline, saline silty clay loams. The vegetation is characterized by a sparse to moderately dense shrub layer (10-40% cover) dominated by *Atriplex canescens* with *Pleuraphis jamesii* dominating the herbaceous layer. Associated shrubs include *Ericameria nauseosa, Ephedra torreyana, Chrysothamnus viscidiflorus, Krascheninnikovia lanata, Gutierrezia sarothrae, Artemisia bigelovii*, or *Opuntia polyacantha* depending on substrate. Other graminoids include *Achnatherum hymenoides* and *Sporobolus cryptandrus* on sandy sites and *Bouteloua gracilis* and *Sporobolus airoides* on fine-textured soil. Forbs generally have low cover and may include *Sphaeralcea grossulariifolia* and *Chenopodium* spp. Introduced species such as *Bromus tectorum* and *Salsola kali* are common on some sites.

ENVIRONMENTAL DESCRIPTION

USFWS WETLAND SYSTEM: TERRESTRIAL

Ouray National Wildlife Refuge Environment: *Atriplex canescens* Sparse Shrubland has become established on level sites with deposits of sandy loam to sandy soils. These sites show signs of wind erosion and have high concentrations of small mammal burrows.

Global Environment: This shrubland association occurs in the southern Great Plains, Colorado Plateau, Uinta Basin, and may occur in the Chihuahuan Desert and eastern California. Elevation ranges from 300-1800 m. It occurs on two distinct types of landforms: sandy sites such as sand sheets and dunes, or lowland sites such as alluvial flats and stream terraces with fine-textured soils. Sites are generally level to gently sloping. The sandy site substrates are aeolian sand or sandy loam. Lowland sites are typically deep, alkaline, saline silty clay loams derived from alluvium. These substrates are generally less saline and occur higher than of *Atriplex canescens / Sporobolus airoides*- or *Atriplex confertifolia*-dominated shrublands that occur in alkaline bottomland sites.

VEGETATION DESCRIPTION

Ouray National Wildlife Refuge Vegetation: *Atriplex canescens* Sparse Shrubland is relatively short-statured, with four-wing saltbush shrubs less than one m tall. Other associated shrubs (*Gutierrezia sarothrae, Chrysothamnus viscidiflorus,* and *Krascheninakovia lanata*) are much shorter, rarely exceeding 25 cm in height. Grass species common to this type are typical of those found on sandy soils of the region, *e. g*., *Pleuraphis jamesii, Achnatherum hymenoides, Sporobolus cryptandrus,* and the annual exotic *Bromus tectorum*. Forbs common to this type include *Salsola kali, Sisymbrium altissimum,* and *Sphaeralcea coccinea*. The foliar cover for four-wing saltbush stands is low, usually between 10-15%, but one site sampled was estimated at approximately 30%, because of the contribution of grass cover.

Global Vegetation: This broadly defined association is characterized by a sparse to moderately dense canopy (10-40% cover) of shrubs dominated by *Atriplex canescens* with a sparse to moderate graminoid layer that is dominated by *Pleuraphis jamesii*. Associated shrubs may include *Ericameria nauseosa, Ephedra torreyana, Chrysothamnus viscidiflorus, Krascheninnikovia lanata, Gutierrezia sarothrae, Artemisia bigelovii*, or *Opuntia polyacantha* depending on substrate. Other graminoids include *Achnatherum hymenoides* and *Sporobolus cryptandrus* on sandy sites, and *Bouteloua gracilis* and *Sporobolus airoides* on fine-textured soil of the lowland sites. Forbs generally have low cover and may include *Sphaeralcea grossulariifolia* and *Chenopodium* spp. Introduced species such as *Bromus tectorum* and *Salsola kali* are common on some sites.

Dynamics: Ecological processes vary with landscape type.

MOST ABUNDANT SPECIES

Ouray National Wildlife Refuge

Stratum	**Species**
SHORT SHRUB	*Atriplex canescens, Gutierrezia sarothrae, Chrysothamnus viscidiflorus*
HERBACEOUS	*Pleuraphis jamesii, Achnatherum hymenoides, Sporobolus cryptandrus, Bromus tectorum, Salsola kali*

Global

Stratum	**Species**
SHORT SHRUB	*Atriplex canescens*
SHORT SHRUB	*Chrysothamnus viscidiflorus*
SHORT SHRUB	*Ericameria nauseosa*
SHORT SHRUB	*Gutierrezia sarothrae*
SHORT SHRUB	*Krascheninnikovia lanata*
GRAMINOID	*Achnatherum hymenoides*
GRAMINOID	*Bouteloua gracilis*
GRAMINOID	*Bromus tectorum*

CHARACTERISTIC SPECIES

Ouray National Wildlife Refuge

Species

Atriplex canescens, Pleuraphis jamesii, Achnatherum hymenoides, Sporobolus cryptandrus, Bromus tectorum

Global

Species

Atriplex canescens, Pleuraphis jamesii

OTHER NOTEWORTHY SPECIES

Ouray National Wildlife Refuge

Stratum	**Species**
N/A	

Global

Stratum	**Species**
N/A	

OURAY NATIONAL WILDLIFE REFUGE SIMILAR ASSOCIATIONS :

Ericameria nauseosa Shrubland occurs on similar habitats.

GLOBAL SIMILAR ASSOCIATIONS:

Atriplex canescens / Sporobolus airoides Shrubland (CEGL001291)--Similar to clayey bottomland and alluvial flats stands of this association.

Atriplex canescens / Bouteloua gracilis Shrubland (CEGL001283)--Similar to clayey bottomland and alluvial flats stands of this association.

Atriplex canescens / Achnatherum hymenoides Shrubland (CEGL001289)--Similar to sandy site stands of this association.

SYNONYMY:

Atriplex canescens / Pleuraphis jamesii p. c. (Francis 1986) . This association described from a site in the upper Rio Puerco watershed of northwestern New Mexico.

Mapping symbol 313.11 Atca - Bogr - Hija - Spai (Miller et al. 1977) I. This vegetation unit is characterized as a grassland with scattered Atca shrubs, with clayey sites dominated by Hija. It is not clear how this relates to this association.

Greasewood-saltbush map symbol (BLM 1979a) I. This vegetation unit is characterized as a grassland with scattered Atca shrubs, with clayey sites dominated by Hija. It is not clear how this relates to this association.

CLASSIFICATION COMMENTS

Ouray National Wildlife Refuge: N/A

Global Comments: As this association is currently defined, it is characterized only by the codominance of *Atriplex canescens* and *Pleuraphis jamesii*. Its relation to several similar associations is also unclear. Most of the information available suggests that the sparse shrub canopy is more typical and that this association should not be classified as a shrubland (Francis 1986, Miller et al. 1977, Von Loh 2000). Because it has a wide distribution (from southern Great Plains to the Mojave Desert), stands occur on diverse habitats (clayey bottomland to sand dunes) and vary from a sparse to moderate shrub canopy. It is likely that when more information becomes available and the needed classification work is completed, this association will be subdivided.

ELEMENT DISTRIBUTION

Ouray National Wildlife Refuge Range: *Atriplex canescens* Sparse Shrubland is distributed mostly on sandy soils near the entryway gate, and along the SH 88 corridor paralleling the west side of the Refuge. Some sandy soils in the western portion of the Refuge, northwest of the headquarters building, also support small stands of four-wing saltbush.

Global Range: This shrubland association occurs in the southwestern Great Plains, Colorado Plateau, Uinta Basin, and probably occurs in the Chihuahuan Desert and eastern California.

Nations: US
States/Provinces: AZ CA? CO NM TX UT
TNC Ecoregions: 10:C, 19:C, 24:C, 27:C, 28:?, 29:?
USFS Ecoregions: 313A:CC, 313B:CC, 315:C, 321:C, 331I:??, 341B:CC, 341C:CC
Federal Lands: USFWS (Ouray)

ELEMENT SOURCES

Identifier: CEGL001288 **Confidence:** 3 **Conservation Rank:** G3G4
REFERENCES: BLM 1979a, BLM 1979b, Diamond 1993, Francis 1986, Miller et al. 1977, Shute and West 1977, Soil Conservation Service 1978, U.S. Bureau of Reclamation 1976, Von Loh 2000.